



# Analysis of Anti Infection Effect of Piperacillin Tazobactam and Cefoperazone Sulbactam in Elderly Patients with Coronary Heart Disease

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**Abstract:** Objective: to analyze the anti infection effect of piperacillin tazobactam and cefoperazone sulbactam in elderly patients with coronary heart disease. Methods: the experiment was carried out in groups from January 2019 to December 2020. The control group (cefoperazone sulbactam) and the study group (piperacillin tazobactam) were divided into two groups. The experimental patients were 98 elderly patients with coronary heart disease (49 cases in each group). Two groups of comparative indicators: pathogen clearance rate, incidence of adverse reactions. Results: the pathogen clearance rate of the study group was 94.63%, and that of the control group was 81.48%, which was higher than that of the control group ( $P < 0.05$ ). The incidence of adverse reactions was 3.57% in the study group and 16.33% in the control group, which was lower in the study group than in the control group ( $P < 0.05$ ). Conclusion: piperacillin tazobactam is better than cefoperazone sulbactam in the treatment of anti infection in elderly patients with coronary heart disease, which can better remove pathogenic bacteria, control various adverse reactions during drug treatment, and ensure the effectiveness and safety of drug use.

**Keywords:** Piperacillin Tazobactam; Cefoperazone Sulbactam; Elderly; Coronary Heart Disease; Infection

## 1. Introduction

Coronary heart disease (CHD) is a kind of human coronary artery atherosclerosis, which leads to vascular stenosis, occlusion and other phenomena, leading to myocardial ischemia, hypoxia or necrosis, and heart diseases. As an elderly multiple disease, the disease is often accompanied by infection, which leads to the aggravation of the disease, increases the difficulty of treatment, and increases the mortality. Therefore, in the process of disease treatment, we need to pay attention not only to the control of coronary heart disease, but also to the intervention of infection. Elderly patients have a variety of basic diseases, such as hypertension, diabetes, and so on. They have higher requirements for treatment drugs. They not only need to pay attention to the effectiveness of disease treatment, but also need to pay attention to the safety of drug treatment. Piperacillin tazobactam and cefoperazone sulbactam are effective in the treatment of senile coronary heart disease<sup>[1]</sup>, but there are still some differences between the effect and safety, which need to be analyzed in detail to provide more effective disease treatment measures<sup>[2]</sup>. In this paper, we analyzed the effect of piperacillin tazobactam and cefoperazone sulbactam on anti infection in elderly patients with coronary heart disease:

## 2 Data and Methods

### 2.1 General information

The experiment was carried out in groups from January 2019 to December 2020. The control group (cefoperazone

sulbactam) and the study group (piperacillin tazobactam) were divided into two groups. The experimental patients were 98 elderly patients with coronary heart disease (49 cases in each group). Inclusive indicators: 1) diagnosis was made after dynamic ultrasound and coronary CT examination; 2) all examinations and clinical data were complete; 3) there was no problem of drug allergy in the past; 4) patients signed the experimental consent. Exclusion criteria: 1) coagulation dysfunction; 2) kidney injury; 3) congenital heart disease; 4) severe mental and consciousness disorders; 5) deficiency of autoimmune system. In the control group, there were 25 males and 24 females, with a median age of  $(73.57 \pm 4.65)$  years old ranging from 60 to 87; in the study group, there were 26 males and 22 females, with a median age of  $(74.14 \pm 4.38)$  years old ranging from 60 to 88. There was no significant difference between the two groups ( $P > 0.05$ ).

## 2.2 Method

Control group: cefoperazone sulbactam (Suzhou Dongrui Pharmaceutical Co., Ltd., Guoyao Zhunzi h20013055) was given by intravenous drip. 2-4g of cefoperazone sulbactam was dissolved in 5% glucose injection or sodium chloride injection, and then diluted to 50-100ml with the same solvent for intravenous drip. The drip time was 30-60min for 7 days.

Research group: piperacillin tazobactam (Zhongshan branch of Zhuhai federal Pharmaceutical Co., Ltd., national medicine Zhunzi h20054307) was also given intravenous drip, with a dose of 3.375g (piperacillin 3g and tazobactam 0.375g) / time. After fully dissolved with 20ml diluent (0.9% sodium chloride injection or sterile water for injection), 250ml liquid (5% glucose injection or 0.9% sodium chloride injection) is immediately added, and the course of treatment are 7 days.

## 2.3 Observation indexes

First of all, the clearance rates of pathogens in the two groups were evaluated, and the laboratory staff carried out pathogen culture to compare the clearance rates.

Secondly, the incidence of adverse reactions in the two groups was evaluated, including loss of appetite, nausea and fatigue.

## 2.4 Statistical analysis

The statistical software used in this study was SPSS23.0, the expression of count data was  $(x \pm s)$ , and the statistical t value test was performed; the expression of measurement data was (n,%), and the chi square ( $X^2$ ) test was performed. The standard of significant difference was  $P < 0.05$ .

# 3 Results

## 3.1 Evaluating the clearance rate of pathogens in the two groups

The pathogen clearance rate of the study group was 94.63% (54 / 56), and that of the control group was 81.48% (44 / 54), which was higher in the study group than in the control group  $P < 0.05$ .

## 3.2 Evaluating the incidence of adverse reactions in the two groups

The incidence of adverse reactions in the study group was 3.57%, including 1 case of decreased appetite and 1 case of fatigue. The incidence of adverse reactions in the control group was 16.33%, including 3 cases of decreased appetite, 2 cases of nausea and 13 cases of fatigue. The incidence of adverse reactions in the study group was lower than that in the control group,  $X^2 = 4.009$ ,  $P = 0.045 < 0.05$ .

# 4. Discussion

Coronary heart disease (CHD) is a disease with high incidence in Department of Cardiology. The body's resistance is significantly reduced, and it is prone to infection, which increases the difficulty of disease treatment. Therefore, it is necessary to control the infection in time. For the elderly patients with coronary heart disease, anti infection treatment mainly focuses on drug control, and penicillin and cephalosporins are widely used. Therefore, it is necessary to analyze the effect and safety of the above two drugs, so as to provide guidance for clinical treatment<sup>[3]</sup>.

The data showed that: the pathogen clearance rate of the study group was 94.63%, and that of the control group was 81.48%, the study group was higher than that of the control group,  $P < 0.05$ . The incidence of adverse reactions was 3.57% in the study group and 16.33% in the control group, which was lower in the study group than in the control group,  $P < 0.05$ . Analysis reason: both cefoperazone sulbactam and piperacillin tazobactam are compound drugs. The main components of cefoperazone sulbactam are cephalosporin and sulbactam. The cefoperazone component in the drug can inhibit the synthesis of cell wall of hand bacteria and has significant antibacterial effect, while sulbactam can have a positive effect on cefoperazone and improve the drug effect.<sup>[4]</sup> The hydrolysis of  $\beta$  - lactam in the body can inhibit the gram bacteria and other bacteria causing infection, but the drug treatment process will lead to some adverse reactions of patients, and the clearance effect of some special bacteria is also low<sup>[5]</sup>. Piperacillin tazobactam is a compound drug of piperacillin and tazobactam, and the ratio of the two components is 8:1. Its function mechanism is similar to cefoperazone sulbactam, but with better the stability and fat solubility, and more uniform ratio. Therefore, the drug has higher stability, faster antibacterial speed, better safety and more ideal<sup>[6-8]</sup>.

To sum up, piperacillin tazobactam is better than cefoperazone sulbactam in the treatment of anti infection in elderly patients with coronary heart disease, which can better remove pathogenic bacteria, control various adverse reactions during drug treatment, and ensure the effectiveness and safety of drug use.

## References:

1. Zhang L, Tian Y. Comparison of clinical efficacy and safety of piperacillin tazobactam and cefoperazone sulbactam in the treatment of elderly patients with coronary heart disease complicated with infection [J]. Anti infective pharmacy2019;16(4):654-656.
2. Feng S. Comparison of clinical efficacy and safety of piperacillin tazobactam and cefoperazone sulbactam in the treatment of infection in elderly patients with coronary heart disease [J]. Anti infective pharmacy2019;16(5):891-893.
3. Wu H, Pan D, Liu Q, etc. Comparison of clinical efficacy and safety of piperacillin tazobactam and cefoperazone sulbactam in the treatment of infection in elderly patients with coronary heart disease [J]. Anti infective pharmacy 2019;16(10):1760-1762.
4. Li D. Clinical observation of piperacillin combined with tazobactam in the treatment of senile coronary heart disease with infection [J]. Northern pharmacy 2020;17(2):126-127.
5. Tao Y. Comparison of piperacillin tazobactam and cefoperazone sulbactam in the treatment of congenital coronary heart disease with infection in children [J]. Journal of clinical rational drug use 2020;13(8):100-101.
6. Gao Z, Xiao S, Li G. Efficacy and safety of different antimicrobial regimens in the treatment of nosocomial infection in elderly patients with coronary heart disease [J]. Chinese Journal of nosocomial infection 2015;(22):5158-5159,5171.
7. Du X, Ren L. Observation on the effect of piperacillin tazobactam and cefoperazone sulbactam in the treatment of senile coronary heart disease [J]. Journal of Shandong Medical College 2019;41(5):334.
8. Gao Y, Zhuang X, Shi L, etc. Comparison of clinical efficacy and safety of piperacillin tazobactam and cefoperazone sulbactam in the treatment of postoperative infection in elderly patients with coronary heart disease[J].Electronic Journal of cardiovascular disease of integrated traditional Chinese and Western Medicine 2019;7(27):29,35.